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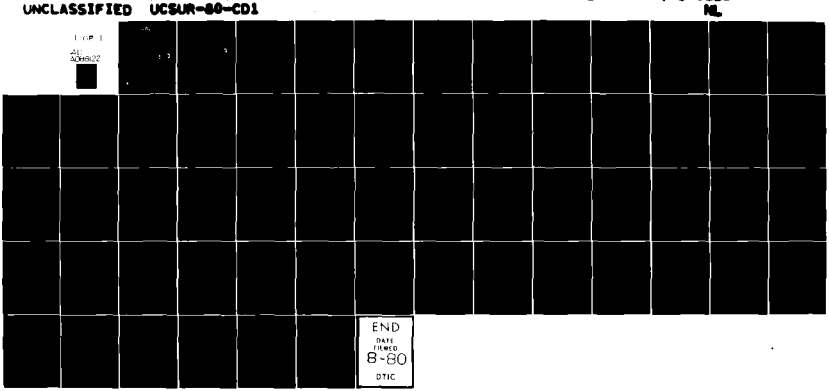

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LEVEL II

FINAL REPORT

PRESIDENTIALLY DIRECTED RELOCATION:

COMPLIANCE ATTITUDES

BY

GEORGE O. ROGERS

CONTRACT: DCPA01-77-C-0218
WORK UNIT: 4815B

FOR

FEDERAL EMERGENCY MANAGEMENT AGENCY
WASHINGTON D.C. 20472

UNIVERSITY OF PITTSBURGH
UNIVERSITY CENTER FOR SOCIAL AND URBAN RESEARCH

MAY, 1980

FINAL REPORT

12

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Compliance Attitudes

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This report has been reviewed in the Federal Emergency Management Agency and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Federal Emergency Management Agency.

University of Pittsburgh
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

In this report the results of the 1978 national survey are cast in terms of presidential relocation compliance attitudes and their bearing on crisis relocation planning. In this national probability sample, 1620 Americans, 18 years of age and older, were interviewed in the contiguous United States. The responsibility for the fieldwork rests with Marketing Information Service of Atlanta, Georgia.

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This study systematically analyzes the underpinnings of compliance attitudes with respect to the various groups of individuals that are likely to remain in risk areas prior to a presidential directive. Risk areas are delineated with respect to the industrial based attack (TR-82). Respondents are subsequently categorized as being at risk if their residence is considered to be in a risk area.

Three groups of respondents are identified as being likely to be in risk areas at the time of attack, given no presidential intervention. The primary target group for crisis relocation programs are those individuals that reside in risk areas and are not likely to spontaneously evacuate--termed potential relocatables. These potential relocatables are likely to relocate under presidential directive if (and perhaps only if) they perceive their survival chances under evacuated posture as improved. Secondly, it appears that the fallout shelter drive of the late 1950s and early 1960s has increased the perceived survivability associated with shelters and thus decreased the likelihood of relocation. Conversely, confidence in the shelter program is positively related to evacuation survival chances, and thus increases the likelihood of relocation under presidential direction. This suggests that public confidence in <u>any</u> survival program will likely enhance confidence in all such programs.

Maladaptive risk area evacuees are defined as those respondents that are likely to be in risk areas and in need of relocation due to their spontaneous evacuation to risk areas from the risk area of their residence. We find that this group of respondents probably would not exist if they were in full knowledge of the nature of risk and risk areas. That is, if information were distributed with respect to the types of actions considered appropriate, this group would be of negligable size.

Finally, it is logically possible for a spontaneous evacuation to take place from a relatively safe area to a risk area. While attitudes suggest that this type of evacuation is likely to occur, we do not have sufficient numbers of respondents that are likely to make this transition for analysis in this report.

The intimate and direct relationship between spontaneous evacuation and relocation suggests that respondents, perhaps due to the similarity of action required by them, do not distinguish between evacuation and relocation. In conjunction with this is the finding that survival chances under evacuated posture is directly related to both evacuation and relocation. This suggests that the extent of confidence in evacuation/relocation as a strategy for survival is the most important 'determinant' of both evacuation and relocation propensities.

This study makes clear that the distribution of information as to the nature of risk and risk areas is of primary importance to the

effectiveness of crisis relocation. This conclusion clearly underlines the importance of educational programs with respect to crisis relocation in either a period of increased tension, or a more general program. We argue that the very effectiveness of crisis relocation as a method of dealing with nuclear disaster depends on this distribution of information.

PREFACE

This paper represents a reformulation of the results of the 1978 national survey. Some specific issues related to crisis relocation planning are addressed: compliance attitudes with respect to a presidentially directed relocation.

While the primary responsibility rests with the author, this research would not have taken place without the continued support of Dr. Jiri Nehnevajsa. Not only was the data made available through his efforts, but his constant and copious criticism, advice and guidance were of tremendous value to the author and this report.

In addition, the author is in considerable debt to the University Center for Social and Urban Research for the constant and unending support. The expression of gratitude is hardly enough.

George O. Rogers

March 26, 1980

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1. INTRODUCTION

A presidentially directed evacuation is one important option for dealing with an acute threat of nuclear war. Before making a complete investigation into attitudes indicative of potential public compliance, let us examine the relationship between this and other alternatives for the mitigation of nuclear disaster affects. Specifically, let us examine the relationships among the following alternative methods:

1. Blast shelters
2. Public fallout shelters
3. Home basement sharing
4. Crisis relocation

The data to be reported here and all subsequent data in this report are derived from the 1978 national survey. This survey was carried out between mid-September and mid-December of 1978. The sample of adult residents (age 18 years or older) of the contiguous 48 states, includes 1,620 Americans. The average interview, as carried out by Marketing Information Service of Atlanta, Georgia, was 71 minutes in length. In another report, Issues of Civil Defense: Vintage 1978, Jiri Nehnevajsa has presented the major findings of the 1978 survey.

We ask each respondent to rate the desirability of these alternatives, from highly desirable (+3) to highly undesirable (-3), with zero (0) representing a neutral response. We find that while the overwhelming majority (77.2%) find at least two of these alternatives desirable (including only positive responses), 88 respondents or 5.4 percent find no alternatives desirable, and 138 respondents (8.4 percent view these alternatives as true alternatives, i.e., mutually exclusive alternatives).

We also find, however, that of those that found no alternative desirable, 36.9 percent said they definitely or probably would evacuate under presidential direction. For those that view these alternatives as mutually exclusive, 52.3 percent responded they definitely or probably would evacuate under presidential direction. This points the way to examination of the patterns of desirability among the alternatives.

Table 1.1 shows that 41.4 percent of our respondents find all four alternatives not only acceptable but desirable.

* Further, if we look at those (138 respondents) that treated these alternatives as mutually exclusive, we find that these alternatives are ranked as follows: Home basements are least desirable, with blast shelters and evacuation being more desirable, and public fallout shelters being most desirable.
* However, if we then examine the responses of those that selected three (3) of the alternatives, we find that the ranking changes slightly to reverse the order of blast shelters and evacuation so that the order becomes: Public fallout as the most acceptable, blast shelters the next most desirable, with evacuation and home basements being the next least and least desirable alternatives respectively.

Since 2.1 percent view evacuation as <u>the</u> alternative, and 62.9 percent find that evacuation is at least <u>an</u> alternative, evacuation groups, which are defined with respect to the response patterns to items on directed and spontaneous evacuation, become the focus of this report. The remaining chapters of this report are organized around response patterns to items on directed and spontaneous evacuation and the extent of actual risk (TR-82) for the area of residence.

Table 1.1.

Pattern of Desirability among Alternatives
Where '+' Denotes Positive Desirability
and '-' Denotes Neutral or Negative Desirability

Public Fallout Shelters	Home Basement Sharing	Evacuation	Blast Shelters	Relative Frequency (%)
+	+	+	+	41.4
+	-	+	+	8.8
+	+	-	+	7.6
-	-	-	-	5.4
+	-	-	-	4.6
+	-	-	+	4.4
+	+	+	-	4.1
+	+	-	-	3.7
+	-	+	-	3.5
-	-	+	-	2.1
-	+	+	+	1.7
-	-	-	+	1.1
-	-	+	+	.8
-	+	-	-	.7
-	+	-	+	.6
-	+	+	-	.5
TOTAL VALID CASES*				1475

*The remaining cases did not respond to at least one question with respect to desirability.

2. SOME RELEVANT RELOCATION GROUPS

Distinct from the issues of feasibility, cost effectiveness, credibility and acceptance, the issues related to spontaneous and directed evacuation are of primary importance to crisis relocation planning (CRP). Of particular importance are the attitudes of the populace toward an evacuation directed by the president or some other figure of authority, which may also be referred to as relocation. However, these attitudes are only relevant when placed in the context of risk and spontaneous evacuation attitudes. The risk areas resulting from industrial based targeting (TR-82) are used as the basis of risk in this report. A respondent is considered at risk if that individual's residence is in an area that is at least partially exposed to risk according to TR-82; otherwise she/he is considered not at risk.

The relocation response must then be considered in light of the respondent's relative location with respect to three considerations:

1. Is the respondent's place of residence located in a risk area?
2. How likely is the respondent to spontaneously evacuate? Or put another way, is the respondent likely to be in or near that residence at the time of impact (t_0) in the absence of presidential action calling for relocation?
3. If the respondent is likely to spontaneously evacuate, what is the nature of that evacuation; is it adaptive or maladaptive?

It is clear that these considerations are ordered ones. That is, spontaneous evacuation is dependent on the risk consideration, and adaptiveness is dependent on both the risk and the spontaneous evacuation considerations. This yields the partitioning presented in Figure 2.1.

It is clear from Figure 2.1 that 45.6 percent of the respondents at risk said they would probably or definitely not evacuate spontaneously. This group of respondents represent 35.3 percent of the entire sample. This group which we shall term 'potential relocatables,' will be the focus of chapter 3. This group of individuals are the primary benefactors of presidentially directed relocation in the event of a nuclear attack.

Spontaneous evacuation, among those at risk comprises 42.6 percent of the sample. Of those respondents at risk 35.9 percent said they would evacuate to a location deemed 'safer', while 18.5 percent responded in a manner suggesting maladaptive spontaneous evacuation. Adaptive spontaneous evacuation for those respondents at risk includes responses such as 'foreign country', ' cottage or summer home', 'campgrounds or countryside', and due to the assumed stress reduction effect, 'relatives or friend's homes', or 'hometown'. Maladaptive responses include spontaneous evacuation to other cities at risk, military bases, and shelter. Those respondents that responded 'don't know where to go' or 'refused to answer', were not classified as either adaptive or maladaptive. Adaptive and maladaptive spontaneous evacuation among those risk comprise 28.1 and 14.5 percent of the sample respectively.

Respondents that are likely to spontaneously evacuate risk (TR-82) areas (regardless of the adaptiveness) must be examined in light of distance traveled in this evacuation and the reasons for choosing this destination. For those respondents at risk and likely to spontaneously evacuate in a maladaptive way, the response to presidentially directed evacuation becomes important since these respondents will be asked to reevaluate their location at a time just before the attack (t_0). Even though 14.5 percent of the sample fit into this category, we expect large portions of this category (perhaps as large as 80 percent, since 79.5 percent said they would follow instructions as to where to go in the event of a directed evacuation) to readjust their destinations to adaptive evacuation postures. This suggests that the primary reason for this group's apparent size is misinformation;* which relevant information about the evacuation in the event of a nuclear attack would alleviate.

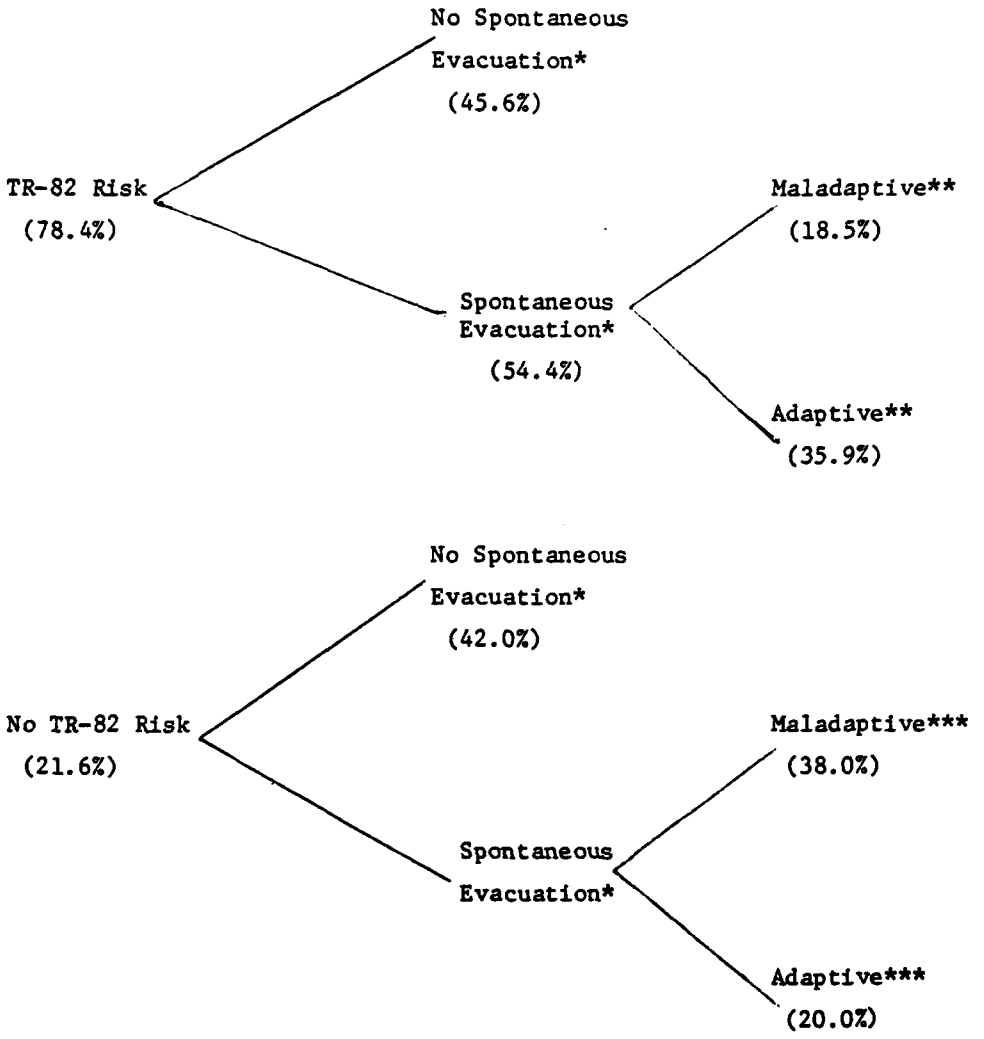
Since 32.3 percent of the entire sample are likely to take adaptive action in the event of a period of increased tension, and only 22.7 percent are expected to take maladaptive action under the same circumstances, we conclude that action is more likely to result in adaptive behavior than maladaptive behavior. However, since 44.4

*It seems undeniably clear that public information about relocation planning itself would drastically reduce the number of maladaptive responses, probably to a negligable level.

percent of our sample are not likely to take any action spontaneously, insights as to the adaptiveness of that inaction can only be examined in the light of responses to directed evacuation. Table 2.1 presents the relative distribution among response sets to an increased period of world tension.

Thus there are three groups of people that are likely to be in risk areas at t_0. First, the residents of those risk areas that are not likely to evacuate (cf. Chapter 3). Second, residents of risk areas that evacuate maladaptively (cf. Chapter 4). And third, residents of non-risk areas that are likely to evacuate to risk areas in the pre-directive period. The last group of individuals cannot be larger than approximately 22 persons in all, and we can only positively identify 5 cases that fit into this category. Thus we shall ignore this group of individuals for the purposes of this report.

Figure 2.1 Groups of Affected Individuals for Presidentially Directed Evacuation.



* Spontaneous evacuation is defined as likely to take place if the probability of evacuation is 50-50 or better; otherwise it is defined as not likely.

** Adaptive spontaneous evacuation, for those respondents at risk, is defined as evacuation to 'safer' areas; maladaptive response includes evacuation to equal or higher risk areas.

*** Adaptive spontaneous evacuation, for those respondents not at risk, is defined as 'evacuation to a shelter;' all other responses are considered maladaptive.

Table 2.1. Relative Distribution Among Spontaneous Evacuation Response Sets in Light of a Period of Increased World Tensions.

Category	Relative Frequency (%)	
Adaptive Responses:		
Spontaneously evacuate 'risk' areas in favor of 'low' risk areas	28.1	
Spontaneously 'evacuate' relatively 'low risk areas in favor of shelter	4.2	
Total Adaptive Responses		32.3
Maladaptive Responses:		
Spontaneously evacuate 'risk' areas in favor of other risk areas	14.5	
Spontaneously evacuate relatively 'low' risk areas in favor of other 'low'risk areas or 'high'risk areas	8.2	
Total Maladaptive Responses		22.7
Inactive Responses:		
At risk	35.3	
Not at risk	9.1	
Total Inactive Responses		44.4
Other active responses (NEC) *	.6	.6
Total	100.0	100.0

*A small proportion of cases are not clearly identifiable into the above groups due to missing data. We are able to identify them insofar as their likelihood of activity, but no further. Thus we refer to them as Not Elsewhere Classified.

3. POTENTIAL RELOCATABLES

The largest group of individuals (35.3%), and the principal target group for directed relocation are those people that are likely to 'stay' in risk areas (TR-82) in the pre-direction period. They are the principal target group in essentially three ways:

1. They are the largest single group of people to be affected.
2. They are likely to remain in risk areas, and thus need further direction or information.
3. They will probably choose an inactive alternative, which implies that they must be persuaded to an active alternative in order to adaptively evacuate.

Who are these people? How likely are they to relocate under presidential direction? And how do they differ from their neighbors?

3.1 Some Selected Characteristics of Potential Relocatables

In response to the first question, let us elaborate some of the principal characteristics:

* While 15.9 percent of the whole sample reside in large northeastern cities of the United States, 23.2 percent of the potential relocatables reside in northeastern cities of 100,000 persons and over. On the other hand, 10.7 percent of the entire sample have residences in large western metropolitan areas, while 15.0 percent of those likely to stay in risk areas in the pre-directive period reside in these cities.
* Among the potential relocatables the older married group, which includes those respondents that are 45 to 64 years of age, married and have no children present in the household, consists of 15.2 percent of the group, while in the complete sample only 11.9 percent are in this category.
* Like the overall sample the majority of potential relocatables are fully employed (68.7 percent among potential relocatables and 69.6 percent of the entire sample).

* Potential relocatables are more frequently females than they are males (59.6 percent), although this is also true of all respondents in the entire sample (i.e., 55.8 percent of the sample are female).
* Like the overall sample we expect about 60 percent of the potential relocatables to follow instructions as to where to go.
* While the age distributions are very similar (both among the potential relocatables and the entire sample), the distribution is somewhat skewed toward the older categories among the potential relocatables.

Category	Total Sample	Potential Relocatables
18 to 29 years of age	30.6%	24.8%
30 to 44 years of age	28.9%	28.5%
45 to 64 years of age	26.1%	29.7%
65 years of age or over	13.4%	15.6%
Refused to answer	1.0%	1.4%

* For those at risk that are likely to stay in the pre-direction period (termed potential relocatables), 40.0 percent of those that responded suggested ideological reasons for non-compliance with a directed evacuation. Only 36.3 percent of the entire sample suggested such reasons.

3.2 Some Impacts on the Likelihood of Directed Evacuation

As opposed to the entire sample, which has a likelihood index of .717 for directed evacuation, this group of potential relocatables in the pre-direction period have a much lower likelihood index (.570). This makes it evident that it is precisely those individuals that are most in need of relocation that are the least likely to relocate under presidential direction.

3.2.1 Geographic Location

With respect to geographic location, three categories of respondents are substantially below average with respect to directed evacuation likelihood (cf. Table 3.1 for complete breakdown). Those included are:

1. The respondents residing in the large (one million and over) metropolitan areas of the north central region of the United States which have a likelihood of .456.
2. Rural, but none-the-less risk areas, of the north central region have a directed evacuation likelihood of .446.
3. Rural, areas of the western region are the least likely to evacuate under presidential direction with an index score of .417.

Several categories are substantially above the average with respect to directed evacuation likelihood index. They include:

1. Large metropolitan areas of the northeastern United States with an index of .644.
2. Rural areas of the northeastern region (.750) and the southern region of the United States (.636).

With two expections, the respondents' estimate of the community response under the presidential evacuation situation is universally higher than the likelihood index of their own relocation. These exceptions both occur with respect to the categories that are above average with respect to likelihood of directed evacuation. Furthermore, both occur with respect to the northeastern and southern rural areas. Thus for the most part we find that regardless of the respondent's own likelihood of evacuation under the presidential directive conditions, the respondent sees himself or herself less likely to evacuate than his or her neighbors.

3.2.2 Respondent's Age

The likelihood of evacuation under the directed conditions varies inversely with the respondent's age. For those over 64 years of age the evacuation likelihood index is at a minimum of .446, while the maximum occurs with respect to the respondents aged 18 to 29 years (cf. the complete breakdown by age is presented in Table 3.2).

The community estimate for all age categories is up an average of .071 points. Thus it is clear that as the propensity of evacuation varies with respect to age the respondent expects his or her neighbors to be more prone to evacuate than themselves.

3.2.3 Sex of Respondent

Potential relocatables are characterized by females that are more likely to evacuate given a presidential directive (.590), while the males are more apt to remain inactive with an evacuation likelihood of .538. The estimates of the community evacuation proportion are again indicative of an increased probability for other community members from the respondent's perspective. Table 3.3 presents this distribution.

3.2.4 Employment Status

Two categories of people with respect to employment status are of particular interest. First it is most apparent from Table 3.4 that respondents employed full time are the most likely to evacuate under the circumstances of presidential direction. While this group makes up 69.5% of the respondents in the risk areas that are not likely to evacuate spontaneously, it also represents a large proportion of the labor force.

Retired individuals on the other hand are among the least likely to evacuate under these conditions (.485). This we suspect may be related to the perceived value these people place on their own life. In other words, this may be related to their perception of their societal worth. Retired people may well be those individuals who perceive their contribution to society as limited, while those that are fully employed find their contribution to society more valuable. This is a somewhat altruistic viewpoint that is eminently related to the protestant work ethic.

Furthermore, all groups of respondents with respect to employment status estimate their neighbor's evacuation index at higher rates than themselves. The community estimate is, on the average, .072 points higher than the likelihood index for the respondents.

3.2.5 Number of Older Household Members

It is very clear that the more household members that are 65 years of age or more, the less probable the respondent is to evacuate under presidential direction. Respondents residing in

households with no persons 65 years of age or more are above average with respect to evacuation likelihood (.606), while those with two members of the household aged 65 or more are considerably less likely to evacuate (.410).

This trend is not only apparent for the estimates of the community likelihood, but are universally higher than the individual estimates.

3.2.6 Disaster Experience

Relocation likelihood for potential relocatables is decreased among those respondents that have had at least one experience with a disaster. Respondents that have never been exposed to a disaster are more likely to evacuate under presidential direction (.598), than disaster exposed individuals (.545). Disaster exposure significantly alters an individual's attitudes toward the need for evacuation. This 'hardening' comes about due to either the fatalistic nature of disasters (i.e., not being able to modify the outcome of a disaster), or a realization that no method of dealing with disaster is a panacea, or a combination of the two. While the community estimates are not empirically different for those exposed to disaster, the pattern is the same as the pattern of relocation propensity. Table 3.7 presents presidentially directed relocation propensities and community estimates by disaster experience.

3.2.7 Life Stage

Life stage deals with the progression of an individual through various phases of life. It is not meant to imply that all individuals progress through all life stages, but rather a classification of individuals with respect to several dimensions simultaneously. This classification should result in sets of more or less homogeneous groups of people with respect to their progression through life. In many cases individuals in life stage categories will share many common values and beliefs. It is for this latter reason that life stage is used in the discussion of relocation propensities.

The most important aspect of life stage is the age component. It is this component that determines the basic 'cohort' of the individual. Secondly, the individual's marital status is of importance since marriage

and the disolution of a marriage are primary 'life events' that usually change an individual's outlook on life in general. Third, it is important to consider the component of being a parent, since the additional 'responsibility' that being a parent involves alters, in a basic way, the approach to one's life. Finally, the relationship of an individual to be in the labor force primarily alters one's 'function' and thus is of primary concern to life stage.

Given these aspects of life stage we have constructed an indicator of life stage from the available indicators of age, marital status, parental status, and employment status. Two categories of individuals were allowed to 'override' other distinctions. First, retired individuals have altered their way of life over those not retired. Thus, if an individual is classified as retired, he or she is in the stage of life characterized as retirement. This is not to argue that retired persons cannot have children or be married, or for that matter be of a relatively young age; it is only to say that retired people have the common relation to the means of production (i.e., none). Secondly, widowed persons share the life event of losing a spouse (without replacement). This being a very disturbing life event, warrants a life stage all of its own.

The remaining groups of life stage are mutually exclusive and exhaustive. They were designed in such a way as to encompass the entire range of possibilities. However, several of these categories (due to their size) were grouped together to create an 'other' category. Thus, we are left with the categories presented in Table 3.8.

Life stage is related to likelihood of evacuation under the presidential directive situation in several ways. It appears that the higher one's self-esteem the more apt they are to evacuate under these conditions. Married parents are more prone to evacuate than non-married parents. Young single adults (.677) are the most likely to evacuate, while retired individuals are least likely to evacuate under the conditions of a presidentially directed evacuation. Among those least likely to evacuate under these conditions are widowed individuals (.479), middle aged single adults (.475), and retired persons (.463). Table 3.8 presents the entire breakdown.

Once again we find that the community estimate is universally higher than the individual likelihood of relocation. Thus it is clear that the use of the individual propensity is a conservative estimate of the magnitude of the actual relocation probability for the entire populace.

3.3 Some Characteristics of Directed Relocation for 'Potential Relocatables'

Given that there are a variety of individual factors that play a role in the likelihood of relocation given the president would urge an evacuation, it is interesting to explore the nature of the multivariate response patterns. When only background characteristics are considered, two variables effect the individual's propensity to relocate given a presidential directive. The most important background factor is the number of household members 65 years of age or more. The individual's propensity to relocate under these conditions decreases 9.3 percent for each additional senior resident in the household.

The other significant impact on directed relocation likelihood is a binary variable representing the north central region of the United States.* Potential relocatables residing in the north central region are 7.7 percent less likely to relocate than those people residing in the northeastern region of the United States. This may well reflect the 'over-identification' of targets in the northeast by the media and subsequently in the minds of the populous. Jointly these background characteristics account for only 5.3 percent of the variance, which indicates that demographically the attitudes toward directed relocation are relatively homogeneous (cf. Table 3.9, column 1 for details).

Regardless of demographic background we find it important to consider the effect of warning, survivability, and threat, not only international ambience, but perception of area risk as well. When all these substantive areas are taken into consideration, only survivability estimates have a significant impact on directed relocation likelihoods. Specifically, the chance of survival if the area

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*Regions of the United States are referred to as they are defined by the Bureau of the Census.

is evacuated (from the respondent's perspective) is directly related to the respondent's propensity toward directed relocation. As the survival chances range from zero to one, and the directed relocation likelihood has the same range, an individual that estimates survivability under evacuation conditions as .8 is 4.6 percent more likely to relocate than an individual that perceives the survivability under evacuated circumstances as .7 when area survival chances in general are taken into account.

On the other hand the perception of the area chances of survival in general tend to decrease the propensity toward directed relocation. Under these same conditions an individual with the perception that area survivability is very good is 12.1 percent less likely to relocate under presidential direction than an individual that believes the area survival chances are very bad, when survivability for evacuated conditions is taken into account. Jointly these two variables account for 14.2 percent of the variance in the propensity to relocate under presidential directive (cf. Table 3.9, column 2 for further details).

For this particular sub-population of 'potential relocatables' general survivability is directly associated with survival expectation if in fallout shelters. Specifically, an individual that finds survival chances 'very good' in fallout shelters is 46.2 percent more confident of survival in general than the individual that perceives survival in fallout shelters as 'very bad'. Survivability in fallout shelters 'explains' just over 20 percent of the variance in general survival chances. Essentially this means that to the extent that the populace has confidence in fallout shelters they are less likely to evacuate even under presidential direction (cf. Table 3.9, column 4 for details).

The best predictors of relocation propensities, when all variables, social demographic and substantive are considered, are evacuation survival chances, number of household members 65 years of age or older, and size of household, in that order. Again evacuation survival has a strong direct effect (.435), while the number of household members maintains a weaker yet significant indirect effect (-.603). Household size is directly related to the likelihood of relocation under a presidential directive. For each additional household member

the respondent is 2.9 percent more likely to relocate, when area survival chances and senior citizen household members are taken into account. Taken jointly these three variables account for 17.6 percent of the variation in directed relocation propensities (cf. Table 3.9, column 3 for details).

3.4 A Preliminary Model of Directed Relocation for 'Potential Relocatables'

From the previous section we know that the only three variables that play a significant role in the propensity to relocate under presidential direction are evacuation survival chances, household size and number of household members 65 years of age or older, when all things are considered. From a modeling standpoint then we know that these will exhaust the direct inputs to directed relocation propensity. Perception of evacuation survival chances being the most significant input to directed relocation likelihood is the 'driver' of the model. Indirect impacts of fallout shelter survivability, and number of household members 65 years of age or more work through evacuation survival chances. The indirect path from fallout shelter survival chances to evacuation survival chances to directed relocation propensity is positive. The indirect path from number of household members to evacuation survivability to relocation propensity is negative. Both the direct and indirect impact of number of household members 65 years of age or more are negative. The complete model is presented in Figure 3.1.

3.5 Conclusions for Potential Relocatables

The overall importance of evacuation survival chances to directed relocation likelihood shows clearly that a respondent's confidence in evacuation as a viable method of survival 'determines' the propensity to evacuate. Survival being the key component of relocation likelihood deserves more attention. A model of the relationship between survivability and directed relocation propensity is presented in Figure 3.2.

This model shows the divergent roles played by confidence in fallout shelters. On the one hand it is reasonable to conclude that the drive of the late 1950's and 1960's toward the use of fallout shelters has increased the perceived survivability for a risk area, which in turn decreases the individual's propensity to relocate. On

the other hand the use of fallout shelters will, even given a successful evacuation, play a role in the protection of an individual in the post attack period. Whether or not this is realized by the respondent is of little consequence, but the positive indirect path from fallout shelter survival chances to relocation propensity, indicated the compatibility of these programs. Finally, it should be noted that the indirect impact through evacuation survivability is nearly three times the magnitude of the negative impact through general survival chances.

Table 3.1.

DIRECTED RELOCATION LIKELIHOOD AND COMMUNITY ESTIMATES UNDER PRESIDENTIAL DIRECTION BY RESIDENTIAL AREA

	Presidentially Directed Relocation		Estimate of Community Relocation Under Presidential Direction	
	Mean Likelihood	N of Cases	Mean Proportion	N of Cases
Total Population	.570	489	.642	489
Large Eastern Cities	.644	111	.689	117
Mid-size Eastern Cities	.577	26	.688	25
Rural Eastern Areas	.750	4	.667	3
Large North Central Cities	.456	57	.543	55
Mid-size North Central Cities	.593	43	.661	44
Rural North Central Areas	.446	14	.550	13
Large South Cities	.533	38	.646	35
Mid-size City	.581	68	.658	68
Rural Southern Areas	.636	11	.600	12
Large Western Cities	.588	74	.628	73
Mid-Western Cities	.527	28	.681	29
Rural Western Areas	.417	15	.520	15
Between Group Significance	.0063		.0462	

Table 3.2.

DIRECTED RELOCATION LIKELIHOOD AND COMMUNITY ESTIMATE UNDER PRESIDENTIAL DIRECTION BY AGE OF RESPONDENT, FOR THOSE RESPONDENTS LIKELY TO STAY IN RISK AREAS IN THE PRE-DIRECTION PERIOD

	Presidentially Directed Relocation		Estimate of Community Relocation under Presidential Direction	
Age	Mean Likelihood	N of Cases	Mean Proportion	N of Cases
Total Population	.571	482	.643	482
18-29 Years	.617	120	.689	124
30-44 Years	.600	138	.705	141
45-64 Years	.572	146	.593	143
65 or More Years	.446	78	.543	74
Between Group Significance	.0004		.0000	

Table 3.3.

DIRECTED RELOCATION LIKELIHOOD AND COMMUNITY ESTIMATE UNDER PRESIDENTIAL DIRECTIVE BY SEX OF RESPONDENT, FOR THOSE RESPONDENTS LIKELY TO STAY IN RISK AREAS IN PRE-DIRECTION PERIOD

	Presidentially Directed Relocation		Estimate of Community Relocation Under Presidential Direction	
	Mean Likelihood	N of Cases	Mean	N of Cases
Total Population	.570	489*	.642	489*
Male	.538	198	.623	201
Female	.590	290	.655	287
Between Group Signifiance	.0570		.2189	

*One respondent failed to be classified by Sex.

Table 3.4.

DIRECTED RELOCATION LIKELIHOOD AND COMMUNITY ESTIMATE UNDER PRESIDENTIAL DIRECTION BY EMPLOYMENT STATUS, FOR THOSE RESPONDENTS LIKELY TO STAY IN RISK AREAS IN THE PRE-DIRECTION PERIOD

	Presidentially Directed Relocation		Estimate of Community Relocation Under Presidential Direction	
Employment	Mean Likelihood	N of Cases	Mean Proportion	N of Cases
Total Population	.570	485	.642	485
Full-Time	.598	337	.681	338
Part-Time	.511	23	.552	25
Unemployed	.567	26	.587	26
Retired	.485	99	.546	96
Between Group Significance	.0106		.0000	

Table 3.5.

DIRECTED RELOCATION LIKELIHOOD AND COMMUNITY ESTIMATE UNDER PRESIDENTIAL DIRECTION BY HOUSEHOLD SIZE, FOR THOSE RESPONDENTS LIKELY TO STAY IN RISK AREAS IN THE PRE-DIRECTION PERIOD

	Presidentially Directed Relocation		Estimate of Community Relocation Under Presidential Direction	
Household	Mean Likelihood	N of Cases	Mean Proportion	N of Cases
Total Population	.571	488	.643	488
1	.528	97	.597	95
2	.521	154	.604	150
3	.623	83	.698	87
4	.580	82	.652	85
5 - +	.663	72	.709	71
Between Group Significance	.0026		.0320	

Table 3.6.

DIRECTED RELOCATION LIKELIHOOD AND COMMUNITY ESTIMATE UNDER PRESIDENTIAL DIRECTION BY NUMBER OF HOUSEHOLD MEMBERS 65 YEARS OF AGE OR MORE, FOR RESPONDENTS LIKELY TO STAY IN RISK AREAS IN THE PRE-DIRECTION PERIOD

	Presidentially Directed Relocation		Estimate of Community Relocation Under Presidential Direction	
	Mean Likelihood	N of Cases	Mean Proportion	N of Cases
Total Population	.570	431	.642	432
0	.606	329	.671	337
1	.466	74	.547	70
2	.410	28	.520	25
Between Group Significance	.0000		.0000	

Table 3.7.

DIRECTED RELOCATION LIKELIHOOD AND COMMUNITY ESTIMATES UNDER PRESIDENTIAL DIRECTION BY DISASTER EXPERIENCE

	Presidentially Directed Relocation		Estimate of Community Relocation Under Presidential Direction	
	Mean Likelihood	N of Cases	Mean Proportion	N of Cases
Total Sample	.570	489	.642	489
Not Exposed to Any Disaster	.598	227	.655	233
Exposed to at Least One Disaster	.545	262	.630	256
Between Group Significance	.0475		.2703	

Table 3.8.

DIRECTED RELOCATION LIKELIHOOD AND COMMUNITY ESTIMATES UNDER PRESIDENTIAL DIRECTION BY LIFE STAGE, FOR RESPONDENTS LIKELY TO STAY IN RISK AREAS IN THE PRE-DIRECTION PERIOD

	Presidentially Directed Relocation		Estimate of Community Relocation Under Presidential Direction	
	Mean Likelihood	N of Cases	Mean Proportion	N of Cases
Total Population	.570	489	.642	489
Young Single Adults	.677	41	.697	42
Young Single Parents	.556	27	.610	28
Young Married Adults	.536	14	.730	15
Young Married Parents	.632	34	.717	35
Middle-Aged Single Adults	.475	10	.620	10
Middle-Aged Single Parents	.583	21	.661	24
Middle-Aged Married Adults	.518	14	.664	14
Middle-Aged Married Parents	.640	86	.738	88
Older Married Adults	.527	76	.552	73
Older Married Parents	.632	36	.669	36
Retired	.463	61	.539	53
Widowed	.479	24	.598	24
Other	.554	46	.600	42
Between Group Signifiance	.0071		.0000	

Table 3.9.

Unstandardized Regression Coefficients for Significant Factors in Directed Relocation Propensities, for Individuals Likely to Stay in Risk Areas in Pre-directive Period

Independent Variables	Directed Relocation Likelihood			General Survival Chances
	Demographic Variables ONLY*	Substantive Variables ONLY**	Both Demographic and Substantive Variables Considered	
Residence in North Central Region ***	-.077	NC	NS	NC
Number of Household Members 65 years of Age or More	-.093	NC	-.060	NC
Household Size	NS	NC	.029	NC
Survival Chances:				
Evacuation	NC	.458	.435	NS
General	NC	-.121	NS	NC
With Fallout Shelters	NC	NS	NS	.462
Constant	.604	.369	.282	.059
R squared	.053	.142	.176	.227

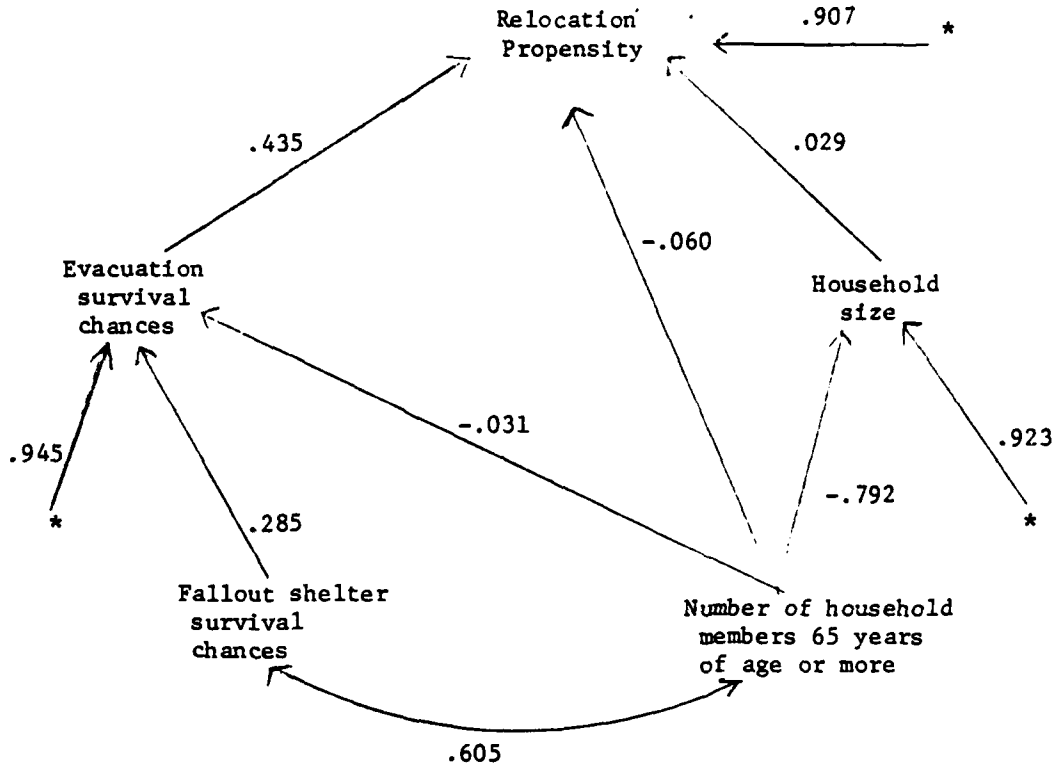
* Demographic variables considered include: Age, Age^2, offered temporary housing to others, sex, employment status, size of household, number of senior citizens in household, marital status, size of city, and region of residence.

** Substantive variables considered include: Survivability under conditions of evacuation and fallout shelters and general survivability of area, international ambient threat, area risk, and warning.

*** Northeast region taken as base category.

NS = Not Significant

NC = Not Considered



* Exogenous Input

Figure 3.1 A Preliminary Model of Directed Relocation Attitudes for those Individuals Likely to Remain in Risk Areas in the Pre-directive Period.

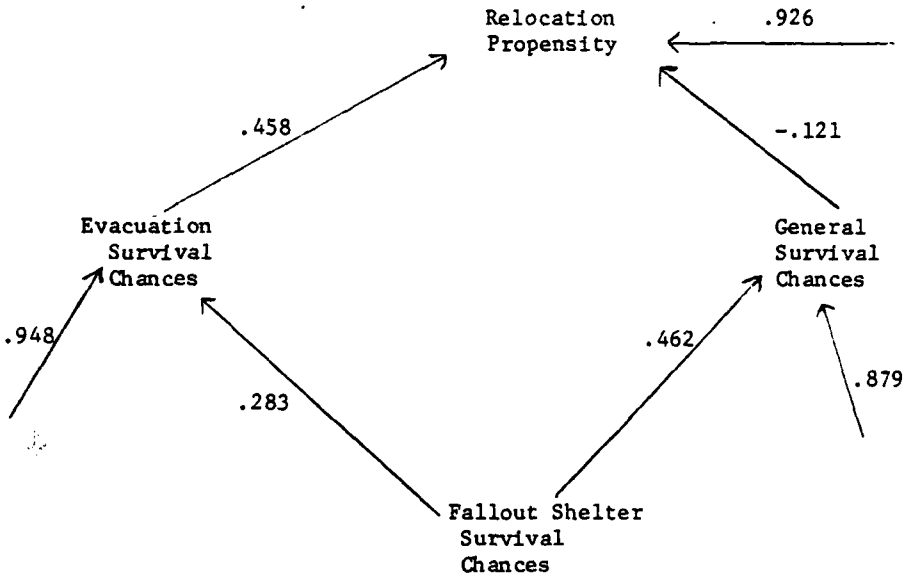


Figure 3.2 A Preliminary Model of the Relationship between Survivability and Directed Relocation Propensity for Individuals not likely to Spontaneously Evacuate TR-82 Risk Areas.

4. MALADAPTIVE RISK AREA EVACUEES

Nearly 60 percent of the entire sample suggested that they are likely to evacuate their residence in a period of increased world tension (i.e., 59.9 percent of the respondents assigned a likelihood of 50-50 or better to evacuation in this period). However, this includes those respondents that reside in non-risk areas, and those that responded that they would "evacuate to shelter."

Since relatively few respondents are positively identifiable as evacuating relatively safe areas for TR-82 risk areas, we are primarily concerned with examining those individuals that reside in areas with relatively high risk, that are likely to evacuate but evacuate in a maladaptive way (i.e., evacuate to an equal or higher risk area). Of the 1270 respondents that reside in risk areas, 65.2 percent are prone to spontaneously evacuate.

Over 200 of these respondents that are likely to evacuate risk areas in a period of increased world tension, did not indicate what their destination might be. However, among those that did indicate the nature of their destination (603 respondents) approximately two out of every three suggest (at least in one sense) adaptive destinations. Approximately 19 percent of these adaptive responses indicate that they will travel 50 miles or less in this spontaneous evacuation (cf. Table 4.1).

It seems reasonable that, given prevailing winds and other conditions on which the TR-82 risk area delineations are based, a certain minimum distance traveled in any evacuation would have to be upheld in order for that evacuation to be considered truly adaptive. We have, rather arbitrarily, set this minimum at 50 miles. Thus we find that 45.4 percent of those that are classifiable are likely to evacuate risk areas in a truly maladaptive way.

Maladaptive spontaneous evacuation from risk areas is then redefined to include individuals that are at risk and likely to evacuate spontaneously and either evacuate to a location with an equal or higher (TR-82) risk, or travel less than 50 miles in this evacuation. We shall refer to this group as simply maladaptive risk area evacuees. Table 4.2 presents the respondent's reason for choosing the destination of the spontaneous evacuation, in comparison with other relevant groups.

4.1 Some Characteristics of Maladaptive Risk Area Evacuees

Examination of this group of respondents makes it clear that the emphasis on public fallout shelters of recent decades has possibly led to a conceptual confusion between "evacuation" and "going to shelter." While 32.9 percent of those respondents that are likely to spontaneously evacuate suggest an 'evacuate to shelter' response pattern, among the maladaptive risk area evacuees this trend is accentuated (i.e., 64.1 percent make the 'evacuate to shelter' response pattern). We suspect that this marked increase is the affect of a recognition of the relative 'risk' of remaining in a comparatively 'unsafe' area. However, when this recognition is coupled with a 'need' to 'take some action' and the emphasis on shelters as the method of dealing with nuclear attack results in an increased response pattern of the 'evacuate to shelter' type.

Like the entire sample, over 60 percent of the maladaptive risk area evacuees believe the named destination to be 'safer'. This makes reasonably clear that lack of information is the primary reason that these individuals are likely to evacuate maladaptively. Furthermore, if during periods of increased world tensions information is made avaiable to the populace as to the nature of risk and risk areas, the extent of maladaptive spontaneous evacuation from risk areas would be reduced substantially.

Maladaptive risk area evacuees are in a variety of ways very similar to the respondents of the entire sample. The distribution of individuals among the categories of background characteristics are not significantly different among those respondents classified as maladaptive risk area evacuees, when compared to the overall sample. Demographic variables examined include: occupation of main wage earner, self-assessed social class, respondent's education, family income, number of household members 65 years of age or older, respondent's age, employment status of main wage earner, respondent's marital status, sex, and race.

4.2 Relocation Propensities for Maladaptive Risk Area Evacuees

The seemingly isomorphic relationship between the sample as a whole and the maladaptive risk area evacuees along demographic and

background characteristics, seems to suggest that relocation propensities for the entire sample will be 'mirrored' by the maladaptive risk area evacuees. However, this is not the case as the overall relocation propensity for maladaptive risk area evacuees is significantly higher (.818) than the relocation likelihood for the complete sample (.717). This apparent shift is primarily a function of the definition of a maladaptive risk area evacuee, rather than a substantively interesting trend.

We assume that if the respondent finds value in the idea of evacuation (in terms of survivability), that this attitude will have a positive impact on both spontaneous evacuation and presidentially directed relocation. Thus by selecting respondents that are likely to spontaneously evacuate, we 'automatically' increase the relocation propensity.

4.2.1 Service in the Armed Forces

The data indicate that if the respondent or the respondent's spouse has served in the armed forces, they are less likely to relocate than those with no such experience. Table 4.3 presents the relocation propensity and the estimate of community evacuation in the presidentially directed situation by armed forces experience. Armed forces experience seems to 'harden' an individual toward noncompliance. We suspect that having experienced the armed forces, individuals are either prone toward the belief that nuclear war cannot happen, or that the destruction of such a war would be so complete as to make surviving either impossible or undesirable.

4.3 Some Background Characteristics and Relocation Propensities for Maladaptive Risk Area Evacuees

Respondents that are residing in large north central cities of the United States are less likely to evacuate under directed circumstances than large city dwellers in the northeastern region, when background characteristics are taken into consideration. Having served in the armed forces is also related to relocation propensities in a negative manner. While residing in large north central cities decreases the likelihood of evacuation under direction from the president by 10.6 percent, having served in the armed services decreases the likelihood of compliance by 55.2 percent, when both are considered simultaneously (cf. Table 4.4, column 1).

4.4 A Preliminary Model of Relocation Propensities for Maladaptive Risk Area Evacuees

On the other hand when only substantive inputs are considered (i.e., ignoring differences of background), relocation is directly dependent (in a positive way) on spontaneous evacuation likelihoods and survival chances (as estimated by the respondent) under evacuated conditions, but simultaneously negatively related to a response of 'nowhere to go' to the question of why some people would not evacuate under any circumstances. While being prone to evacuate spontaneously increases the compliance rate by 22 percent, and directed relocation likelihoods are 16.2 percent more likely for those that view survival chances as 'very good' than those that responded that the survival chances are 'very bad' if evacuated, those respondents that suggested 'no place to go' as a reason for noncompliance are 12.7 percent less likely to evacuate under presidential directive (cf. Table 4.4, column 2).

When both demographic and substantive variables are taken into consideration, we find that the best three predictors of relocation propensities for maladaptive risk evacuees are: the respondent's spontaneous evacuation likelihood, evacuation survival chances and residence in the north central region of the country and in large metropolitan areas. Empirically we find that an increase of 10 percent in spontaneous evacuation likelihood increases the likelihood of relocation under presidential directive by 2.3 percent. In a similar sense the chances of survival assigned to evacuation by the respondent is positively related to relocation propensity. Specifically a respondent that believes his/her chances of survival are 'very bad' if the area is evacuated is 17.8 percent less likely to relocate under presidential direction than the individual that responds that his/her survival chances are 'very good.' Finally respondents residing in large metropolitan areas in the north central region are 10.6 percent less likely to relocate than individuals residing in large northeastern cities (cf. Table 4.4, column 3).

Since only service in the armed forces and residing in large cities in the north central region of the United States are important factors in the likelihood of relocation under presidential direction, it seems reasonable to ignore such inputs to relocation propensity.

In other words, given only these two empirical inputs with respect to demographic variables, examination of a model of relocation propensity regardless of background is reasonable. Such background characteristics would be exogenous to any substantive inputs in any event.

While the direct impacts on relocation propensity are precisely as reported in Table 4.4 (column 2), only the indirect effect need be further examined (cf. Figure 4.1). Since survival chances maintain positive impacts on both spontaneous evacuation and relocation likelihoods and the relationship between spontaneous and directed evacuation is a positive one, it is clear that those individuals that 'believe' in evacuation as an appropriate way of mitigating the effect of nuclear attacks, are more likely to evacuate both on their own and in response to a presidential directive.

On the other hand, those respondents that suggest that some people may not evacuate under any circumstances since they have 'nowhere to go', affects both spontaneous and directed evacuation in a negative way. Thus once again due to the positive relationship between spontaneous and directed evacuation, suggesting 'nowhere to go' as a reason for not evacuating affects relocation propensities in a negative manner both directly and indirectly.

Survival chances under evacuated conditions are directly affected by survival chances for both fallout and blast shelters. Specifically, if survival chances are seen as 'very good' given the use of fallout shelters, the respondent is 25.1 percent more confident in terms of evacuation survival chances than if the chances of survival in fallout shelters is considered 'very bad'. Survival chances in blast shelters is viewed in a similar way, with evacuation survivability being increased 18.7 percent for individuals that consider blast shelter survivability as 'very good' when compared to blast shelter survivability as 'very bad'. This indicates that increasing public confidence in either public fallout shelters or blast shelters, or more directly evacuation programs themselves will work to increase the likelihood of evacuation in general (i.e., either spontaneous or directed). This may be interpreted as a public

confidence in civil defense concepts of the past yielding an increased confidence in current programs which in turn yields a higher relocation propensity.

Suggesting that some people have 'nowhere to go' as a source of noncompliance with a directed relocation is directly affected by the likelihood of the respondent's residential area being in danger or a target area. If the respondent views the area of his/her residence as being in 'certain danger'. He/she is 23.4 percent more likely to suggest the lack of a place to go as a reason for not evacuating, than the respondent that responds that they are in 'no danger'. On the other hand, the more extreme the respondent feels the current world tensions are the less likely they are to suggest the lack of a place to go as a reason for not evacuating. Thus in periods of increased world tension maladaptive risk area evacuees are less likely to suggest that some people have 'nowhere to go' as a reason for not evacuating, and are thus more likely to either spontaneously evacuate or relocate. Once again pointing to the need for a program to inform the populace as to appropriate action in periods of increased world tensions.

4.5 Conclusions for Maladaptive Risk Area Evacuees

If we are willing to assume that the populace acts in a rational manner, that is based on their attitudes about the events that are guiding their actions, (which seems perfectly reasonable) then the primary reason for the existence of this group of maladaptive risk area evacuees is the lack of information. A program for the distribution of information as to appropriate and inappropriate action seems clearly suggested. Maladaptive risk area evacuees are by definition likely to evacuate but, of course, not likely to take appropriate action in the face of acute world crisis. The implication for this group is clear in that they are on the one hand, more aware of the need for action, but on the other, unaware of the kinds of actions that would be appropriate.

While the group is reasonably homogeneous with respect to background characteristics, three substantive differentials drive the model of relocation propensity. The most obvious is the likelihood of spontaneous evacuation. Essentially, respondents that are

likely to evacuate spontaneously are also inclined to relocate under presential directive. Empirically respondents do not differentiate between evacuation on the one hand and relocation on the other. The more exogenous inputs into the model have similar effects on both spontaneous evacuation and presidentially directed relocation. This is probably due to the similarity of action that each would require of the respondent.

The rationality behind the finding that an individual is more likely to evacuate if (and perhaps only if) he/she views evacuation as increasing his/her survivability is flawless. However, in terms of survivability, alternate methods of mitigating the effect of nuclear war are not viewed as mutually exclusive. Thus it seems as if the respondents are likely to be more confident in any particular alternative if they are also confident in all the alternatives.

While threat does not deem to affect relocation propensity directly, which is couterintuitive, it does affect the relocation propensities in an indirect manner. Threat does work indirectly through the suggestion that some people have 'nowhere to go,' as a reason for not evacuating under any circumstances. It is not unmistakenly clear that increased threat yields decreased likelihood of suggesting that some people have 'nowhere to go', which in turn increases the likelihood of both evacuation and relocation. What is clear is that threat, with respect to increased world tensions, plays this role, while threat with respect to likelihood of residential area being a target has the opposite effect. This is perhaps due to the realization that target areas exist but that the likelihood of them being used is negligible. Thus as world tensions increase the populace is apt to find a place to go, while realizing that they reside in a risk area.

Table 4.1 Distance Traveled in Spontaneous Evacuation

Category Label	Total Sample		Sample at Risk (TR-82)							
			Total		Likely to Spontaneously Evacuate*					
					Total		Maladaptive**		Adaptive***	
	Absolute freq.	Relative freq. (%)	Absolute freq.	Relative freq. (%)	Absolute freq.	Relative freq. (%)	Absolute freq.	Relative freq. (%)	Absolute freq.	Relative freq. (%)
Less than a mile	77	4.8	51	4.0	51	6.2	31	15.1	17	4.3
1 to 10 miles	111	6.9	75	5.9	75	9.1	55	26.8	19	4.8
11 to 20 miles	28	1.7	21	1.7	21	2.5	10	4.9	11	2.8
21 to 30 miles	16	1.0	10	0.8	10	1.2	--	--	10	2.5
31 to 40 miles	7	0.4	6	0.5	6	0.7	--	--	6	1.5
41 to 50 miles	18	1.1	17	1.3	17	2.1	3	1.5	13	3.3
51 to 100 miles	62	3.8	55	4.3	55	6.6	3	1.5	50	12.6
101 to 200 miles	62	3.8	55	4.3	54	6.5	4	2.0	48	12.1
201 to 300 miles	30	1.9	26	2.0	26	3.1	1	0.5	24	6.0
301 to 400 miles	19	1.2	16	1.3	16	1.9	--	--	16	4.0
401 to 500 miles	14	0.9	12	0.9	12	1.4	1	0.5	11	2.8
501 or more miles	99	6.1	87	6.9	87	10.5	3	1.5	83	20.9
Inapplicable	650	40.1	503	39.6	62	7.5	--	--	--	--
Don't Know	362	22.3	284	22.4	284	34.3	83	40.5	79	19.8
No Answer	65	4.0	52	4.1	52	6.3	11	5.4	11	2.8
Total	1620		1270		828****		205		398	

* Spontaneous evacuation is defined as likely to take place if the probability of evacuation is 50-50 or better, otherwise it is defined as not likely.

** Maladaptive spontaneous evacuation, for those respondents at risk, includes evacuation to equal or higher risk areas.

*** Adaptive spontaneous evacuation, for those respondents at risk, is defined as evacuation to 'safer' areas.

**** Over 200 respondents did not give the destination of their (likely) spontaneous evacuation. They, therefore, cannot be classified as either adaptive or maladaptive.

Table 4.2 Reason for Choosing Destination in Spontaneous Evacuation

Category Label	Total Sample		Sample at Risk (TR-82)					
			Total		Likely to Spontaneously Evacuate*			
					Total		Maladaptive**	
	Absolute freq.	Relative freq. (%)	Absolute freq.	Relative freq. (%)	Absolute freq.	Relative freq. (%)	Absolute freq.	Relative freq. (%)
Safer	421	26.0	351	27.6	350	42.3	156	54.5
Be With Family	97	6.0	84	6.6	84	10.1	26	9.1
Other (NEC)	45	2.8	35	2.8	35	4.2	12	4.2
Only One Known to Respondent	46	2.8	24	1.9	24	2.9	18	6.3
Closest	61	3.8	37	2.9	37	4.5	36	12.6
Inapplicable	650	40.1	503	39.6	62	7.5	--	--
Don't Know	220	13.6	173	13.6	173	20.9	25	8.7
No Answer	80	4.9	63	5.0	63	7.6	13	4.5
Total	1620		1270		828***		286	

* Spontaneous evacuation is defined as likely to take place if the probability of evacuation is 50-50 or better, otherwise it is defined as not likely.

** Spontaneous evacuation from risk areas is considered maladaptive when the destination is either less than 50 miles from the origin or is of equal or higher risk.

*** Over 200 respondents did not give the destination of their (likely) spontaneous evacuation. They, therefore, cannot be classified as either adaptive or maladaptive.

Table 4.3.

Relocation Propensity by Service in Armed Forces

	Presidentially Directed Evacuation Propensity		Respondent's Estimate of Community Compliance	
	Mean Likelihood	N of Cases	Mean Proportion	N of Cases
Total Sample	.817	280	.768	272
Respondent or Spouse Served in Armed Forces	.785	120	.754	116
Neither Respondent or Spouse Served in Armed Forces	.841	160	.778	156
Between Group Significance	.0268		.3479	

Table 4.4.

Unstandardized Regression Coefficients for Significant Factors in Directed Evacuation Propensities, for Maladaptive Risk Area Evacuees

Independent Variables	Presidentially Directed Relocation Propensity		
	Demographic Variables ONLY*	Substantive Variables ONLY**	Both Demographic and Substantive Variables
Spontaneous Evacuation Propensity	NC	.220	.225
Survival Chances: Evacuation	NC	.162	.178
Suggest some people have 'nowhere to go' in evacuation	NC	-.127	NS
Residence in Large City of North Central Region***	-.106	NC	-.106
Armed Forces Service	-.552	NC	NS
Constant	.851	.550	.541
R squared	.040	.108	.118

*Demographic variables considered include: Age, Age^2, Region of residence, size of city, disaster experience, single person-senior citizen households, evacuation experience, armed forces experience, combat experience, and residential history.

**Substantive variables considered include: Survivability under conditions of evacuation, fallout and blast shelters, and general survivability, international ambeint threat, warning, reasons for not evacuating under presidential direction, distance traveled in spontaneous evacuation (SED), SED^2, and whether respondent would follow instructions as to where to evacuate to.

NS=Not Significant

NC=Not Considered

***Large North Eastern Cities taken as base category.

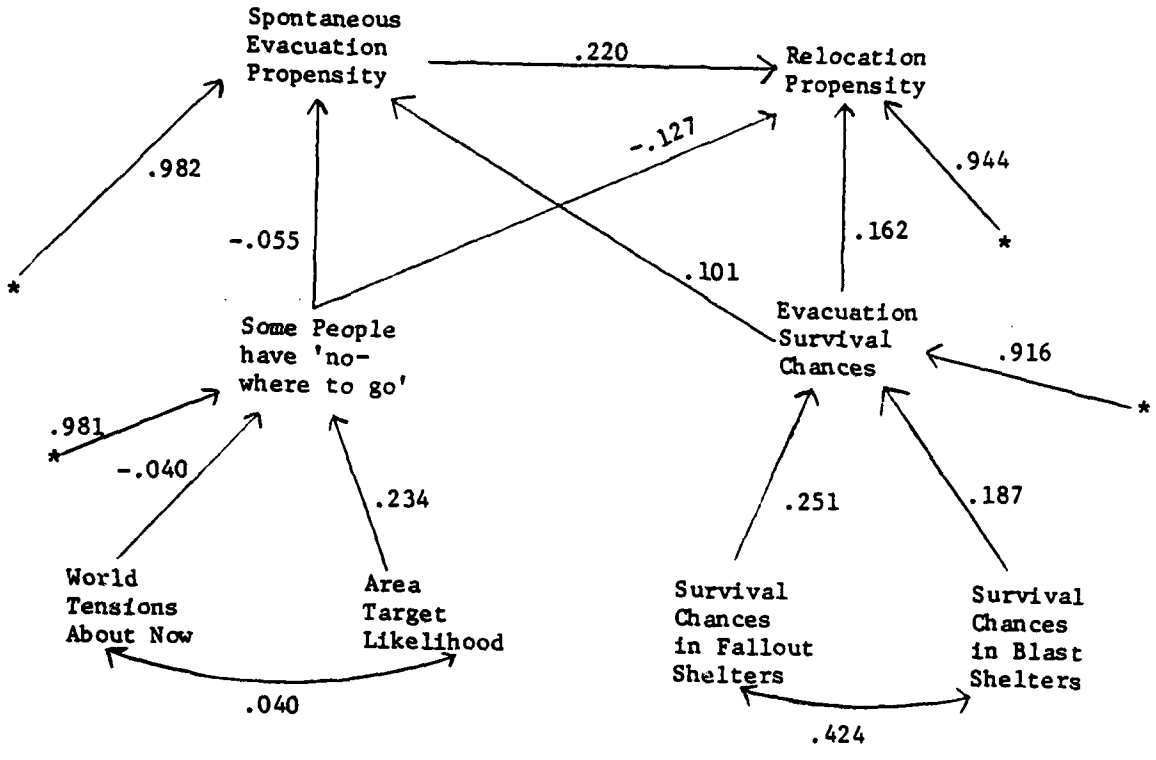


Figure 4.1. A Preliminary Substantive Model of Relocation Propensity for Maladaptive Risk Area Evacuees.

5. CONCLUSION

While we recognize that crisis relocation is only one of several methods available for the mitigation of the effects of nuclear disaster, we find that among our sample the vast majority view the alternatives as complimentary (i.e., in terms of their desirability). A large portion of the sample find crisis relocation a desirable means of dealing with the effect of nuclear disasters.

Within the context of this "overall favorableness" toward crisis relocation, the purpose of this report has been to explore the nature of compliance with a presidentially directed evacuation, termed relocation, to avoid confusion between directed and spontaneous evacuation. We have argued that consideration of three groups of individuals is important for the examination of compliance attitudes for those people likely to be in risk areas at the time of attack (t_0) should there be no presidential action to direct relocation.

1. Individuals that reside in risk areas and are not likely to spontaneously evacuate, termed <u>potential relocatables</u>.
2. Risk area residents that are likely to evacuate their residences maladaptively, termed <u>maladaptive risk area evacuees</u>.
3. Residents of relatively safe areas that are likely to spontaneously evacuate to risk areas in the pre-directive period.

This latter group was found to be of insufficient size to include in this report. We recognize that these groups are based on <u>attitudes</u> rather than <u>behavior</u>. We have focused our attention on attitudes toward compliance with a presidentially directed relocation, rather than behavior in an actual relocation situation.

The most obvious finding is that attitudes toward spontaneous evacuation and directed relocation are related directly (i.e., the more likely an individual is to evacuate spontaneously, the more likely he/she is to relocate under the conditions of a presidential

directive). This is probably due to the similarity of the actions required (by the respondent) to either evacuate or relocate. This involves not only the attitudes of the respondent but the resources available to the respondent as well. It does not indicate that a respondent is likely to both evacuate and relocate if the evacuation is adaptive, or that the evacuation precludes relocation if the evacuation is maladaptive.

Perhaps the most important finding is that among those individuals likely to be in risk areas at t_0, evacuation survival chances are positively related to both spontaneous and directed evacuation attitudes. If an individual believes that his/her survivability is enhanced by evacuation, he/she will be more likely to evacuate in either a spontaneous manner or in response to a presidential directive. Thus we conclude that the extent of confidence in evacuation as a method of mitigating the effect of nuclear disaster, is directly related to both evacuation and relocation propensities. This conclusion is so eminently reasonable and rational, that it precludes further discussion.

The distribution of information as to the nature of risk and risk areas is of primary importance in a period of increased world tensions if crisis relocation is to be an effective method of mitigating the effects of nuclear war. Among maladaptive risk area evacuees misinformation is the principle reason for the group's existence, while about 60 percent of the potential relocatables said they would 'follow instructions' as to the destination of presidentially directed relocation. We argue that the effectiveness of crisis relocation as an alternative method of dealing with nuclear disaster depends on the distribution of information as to the appropriateness of various behavior patterns. This we find to be true not only of spontaneous evacuation but of relocation as well.

While we expected the perception of threat to play a major role in the model of relocation propensity, we found that threat has no direct impact on either spontaneous evacuation or relocation. However, it does have the indirect effect of decreasing the likelihood of responding that some people have 'nowhere to go' and that is

why they will not evacuate under any circumstances, when we consider the effect of world tensions, for maladaptive risk area evacuees. This yields an overall positive affect on relocation propensities. On the other hand, perception of area target likelihood has the opposite effect on suggesting that some people have 'nowhere to go' in the event of evacuation, which yields an overall negative affect on relocation propensities. Threat not only does not have the magnitude of affect we expected, but is not clearly interpretable with respect to the relationship between threat in general and the likelihood of relocation. Furthermore, threat does not play any empirically significant role for potential relocatables.

Finally we would like to point out that those individuals that reside in risk areas that are not likely to spontaneously evacuate are the principal 'target group' for presidentially directed relocation efforts.

1. They are of primary importance since they are the largest single group of individuals.
2. Potential relocatables are the most likely group of individuals to be in risk areas at t_0 since they are less likely to relocate than maladaptive risk area evacuees.
3. They are also more likely to be 'risk area stayers' since they are likely to be in their own homes at t_0. This last point is arrived at since this makes them more prone toward feeling 'safe' in familiar surroundings, and due to the 'protection of their territory', than those individuals that are not likely to be in or around their homes.

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Presidentially Directed Relocation: Compliance Attitudes

University Center for Social and Urban Research
University of Pittsburgh

CONTRACT: DCPA01-77-C-0218
WORK UNIT: 4815B

May, 1980

In this report the results of the 1978 national survey are cast in terms of presidential relocation compliance attitudes and their bearing on crisis relocation planning. In this national probability sample, 1620 Americans, 18 years of age and older, were interviewed in the contiguous United States. The responsibility for the fieldwork rests with Marketing Information Service of Atlanta, Georgia.

This study sytematically analyzes the underpinnings of compliance attitudes with respect to the various groups of individuals that are likely to remain in risk areas prior to a presidential directive. Risk areas are delineated with respect to the industrial based attack (TR-82). Respondents are subsequently categorized as being at risk if their residence is considered to be in a risk area.

Three groups of respondents are identified as being likely to be in risk areas at the time of attack, given no presidential intervention. The primary target group for crisis relocation programs are those individuals that reside in risk areas and are not likely to spontaneously evacuate—termed potential relocatables. These potential relocatables are likely to relocate under presidential directive if (and perhaps only if) they perceive their survival chances under evacuated posture as improved. Secondly, it appears that the fallout shelter drive of the late 1950's and early 1960's has increased the perceived survivability associated with shelters and thus decreased the likelihood of relocation. Conversely, confidence in the shelter program is positively

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related to evacuation survival chances, and thus increases the likelihood of relocation under presidential direction. This suggests that public confidence in *any* survival program will likely enhance confidence in all such programs.

Maladaptive risk area evacuees are defined as those respondents that are likely to be in risk areas and in need of relocation due to their spontaneous evacuation to risk areas from the risk area of their residence. We find that this group of respondents probably would not exist if they were in full knowledge of the nature of risk and risk areas. That is, if information were distributed with respect to the types of actions considered appropriate, this group would be of negligible size.

Finally, it is logically possible for a spontaneous evacuation to take place from a relatively safe area to a risk area. While attitudes suggest that this type of evacuation is likely to occur, we do not have sufficient number of respondents that are likely to make this transition for analysis in this report.

The intimate and direct relationship between spontaneous evacuation and relocation suggests that respondents, perhaps due to the similarity of action required by them, do not distinguish between evacuation and relocation. In conjunction with this is the finding that survival chances under evacuated posture is directly related to both evacuation and relocation. This suggests that the extent of confidence in evacuation/relocation as a strategy for survival is the most important 'determinant' of both evacuation and relocation propensities.

This study makes clear that the distribution of information as to the nature of risk and risk areas is of primary importance to the effectiveness of crisis relocation. This conclusion clearly underlines the importance of educational programs with respect to crisis relocation in either a period of increased tension, or a more general program. We argue that the very effectiveness of crisis relation as a method of dealing with nuclear disaster depends on this distribution of information.

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